VOLVULUS OF THE SMALL INTESTINE IN TYPHOID FEVER, SIMULATING PERFORATION.*

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A GIRL, aged 19 years, in the Polyclinic Hospital, under the care of Dr. David Riesman for typhoid fever, had been admitted on February 9th, and showed the usual symptoms of that disease.

At 9 P.M. on the 22d of the month she began to complain of abdominal pain of a severe character, which persisted throughout the night. On the next morning the patient was listless, with contracted pupils and parted lips; and had a temperature at 2 A.M. of 103.4°; at 8 A.M. of 102.4°. The pulse had not varied much from what it was before the pain occurred, but her respiration was increased. The breathing was mostly abdominal in type. There was slight fulness in the lower right quadrant of the abdomen and extreme tenderness in that region, with marked rigidity and some dulness and impaired resonance. The pain was most marked at McBurney's point. At intervals the resistance lessened. There was no tenderness in the right flank posteriorly. The pulse was of good volume but dicrotic. The liver dulness was preserved and extended to the costal margins. The heart sounds had good tone and were normal. The tongue was dry and could not be readily protruded. At 11 o'clock in the morning of the 23d, tenderness and rigidity were more marked than at 10 o'clock.

When I saw her on the 23d at 11.30 A.M. the whole abdomen was rigid, but the rigidity was much more marked in the right iliac region. There had been no sudden drop in temperature, though in the preceding thirty-six hours the temperature had come down about three degrees and there had been a slight increase in pulse and respiration. At the time of the examination, however, the condition of pulse, respiration and temperature was about that which had existed prior to this gradual

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fall in the temperature. The patient was crying out at intervals from pain, and gave evidence of great pain when the skin over the right iliac region was even lightly touched. This occurred even if her attention were distracted from her abdomen, by asking her to put out her tongue. The general symptoms of perforation were not present, but the pain, tenderness and rigidity seemed to indicate some intra-abdominal lesion.

An incision, about three inches in length, was made over the ileocæcal region. No pus or serum was found in the abdomen. There was great difficulty in drawing up the cæcal portion of the ileum, which seemed to be imprisoned in the pelvis and was collapsed. The ileum, above the portion held in the pelvis, was moderately distended, freely movable, and easily delivered through the wound. The appendix was short and bound, throughout its whole length, to the cæcum by a web-like attachment, and pointed upwards. It was not swollen nor inflamed externally, and no concretion could be felt within it. The condition of the appendix seemed to me to be more like a congenital anomaly than a condition due to old inflammatory adhesions. There was no perforation in the appendix or cæcum. After a good deal of difficulty the lower portion of the ileum was pulled up from the pelvis and drawn out of the wound, when it became normally distended. There were no evidences of its having been held by adhesions. About two feet of the ileum, from the cæcum upward, were examined and no perforation found. There was no discoloration of the serosa to indicate the presence of internal ulceration. The gall-bladder was examined, but found normal to touch. It was moderately distended and contained no calculus. The incision was closed, and subsequently healed by first intention.

The patient's pain and the rigidity of the abdomen disappeared after the operation. She went through the remainder of the typhoid fever without abdominal symptoms other than such occasional pain as might be seen in ordinary cases. There was no later evidence that there had been an appendicitis to have been the cause of the pain and rigidity. The slight rigidity and pain, which were subsequently complained of, seemed to be very different from what was present at the time of the operation, and could readily be accounted for by the ordinary nervous condition of the patient. When convalescence seemed almost

complete, the patient had a relapse, with comparatively high temperature and an enlarged spleen. From this condition, she gradually recovered.

Consideration of this case seems to show that there was either a volvulus causing constriction of the lower portion of the ileum, or a mild appendicitis, due probably to a typhoid inflammation of the mucous membrane. Because of the critical condition of the patient from typhoid fever, the absence of definite symptoms of appendicitis and the possibility of the condition of the appendix being congenital, the appendix was not removed.

I have come to the conclusion that the symptoms were due to a sudden twist of the ileum, which was finally disentangled, when I turned the coils over and over, in my endeavor to bring the cæcal end of the small intestine up from the pelvis, in which it was imprisoned.

Dr. Riesman writes me that "taken all in all, I agree with you that volvulus or perhaps a localized spasm of the intestine was the cause of the girl's symptoms, which brought her to the operating-table."

The situation of the appendix was very like that shown in Figure 252 of Kelly and Hurden on The Vermiform Appendix and Its Diseases. It is labeled by those authors, "Embryonic Displacement of the Appendix." In this instance, which I am considering, the appendix was much shorter, but it pointed upwards and was similarly adherent to the cæcum.

Had I not found the bowel held down in the pelvis so firmly, I should have been driven to the conclusion that the symptoms were due to an attack of mild appendicitis, which promptly subsided, as not infrequently happens in that disease unassociated with typhoid fever. The woman states that she never had a similar attack of pain or other evidences of appendicitis. I have watched her carefully since operation, and have found no reason to believe that an appendicitis has been present. The operation

seemed to exert no influence on the course of the typhoid fever; except to relieve the abdominal pain and rigidity. Intestinal obstruction in typhoid fever from volvulus or other cause appears to be unusual At all events its occurrence has not attracted the attention in literature that its importance demands. This may be due to the fact that many cases have been considered to be fatal perforations of the bowel. If no operation or necropsy was performed, the true condition would remain unrevealed.

Dr. Allan Eustis,[1] in a paper read March 11, 1905, before the Orleans Parish Medical Society, records two cases of fatal volvulus of the small intestine, occurring in typhoid fever. He believes that cases occur which are mistaken for perforation of, or hæmorrhage into, the bowel. In his cases the diagnosis was only made by autopsy, and it is probable that in both instances prompt operation would have saved life. The symptoms, according to Dr. Eustis, closely simulated those of perforation, excepting that the leucocytosis was not so high. He says that a localized paresis of the bowels favors the occurrence of volvulus, as does also absence of mesentery in the lower end of the intestine. He thinks that volvulus might occur in cases recovering from typhoid fever, on account of the localized peritonitis so often seen in this disease; and quotes Mayo Robson as mentioning the occasional occurrence of volvulus during colic from cholelithiasis.

DR. EUSTIS'S CASES.

Case I.—A colored woman, aged 22 years, with typical symptoms of typhoid fever, for six and a-half weeks, was seized with violent abdominal pains, referred to the umbilical region, followed by violent and persistent vomiting. The morning temperature had been normal for 15 days, while the afternoon temperature reached 99° or 99.5°. The pain was accompanied by extreme collapse, subnormal temperature and imperceptible pulse. When seen by Dr. Eustis a few hours later her temperature was 97°, the skin cold and clammy, and the pulse imperceptible. She was vomiting almost incessantly and passing loose green

[1] New Orleans Medical and Surgical Journal 1904-1905, vol. lvii p. 816.

stools with an offensive odor. The abdominal walls were rigid and palpation was extremely painful. There was very little tympanites. No mass could be felt through the abdominal walls, on account of their rigidity. The leucocytes numbered 15,000. She died within a few hours, notwithstanding the use of stimulants and external heat.

Post-mortem examination of the abdominal cavity disclosed a volvulus of the middle of the jejunum. The intestine here was intensely congested and almost gangrenous, and was matted down at the site of the volvulus. The mucous membrane from the ileocæcal valve to beyond the region of the volvulus showed ulcerations of the Peyer's patches. In some places the ulceration had almost extended to the serous coat of the intestine.

CASE II.—About ten days later a similar case was seen by him. It presented the following history: A colored girl, aged 15 years, was admitted to the Charity Hospital on July 22, 1903, in a delirious condition, which prevented the obtaining of a definite history. There was severe abdominal pain which persisted until death. The abdomen was moderately distended, tympanitic and extremely tender to pressure. The extreme prostration of the patient was overcome to some extent by stimulation until three days after admission, when she was seized with excruciating pain in the abdomen, accompanied by subnormal temperature. Vomiting occurred immediately and soon became stercoraceous. Diarrhœa with offensive stools succeeded the constipation which had been present for some days after admission. Cold, clammy skin, imperceptible pulse, and subnormal temperature occurred, and she died on July 27th without rallying from the initial symptoms of shock.

The intestines were found congested, and the solitary follicles and a few Peyer's patches were ulcerated. No perforation was found, but the intestines were matted together by recent adhesions. Four feet above the ileocæcal valve the adhesions formed a flexion about four inches in length producing an obstruction at this site, and there was distinct twisting of the involved intestine. Dr. Eustis believed it probable that both patients could have been saved by prompt surgical interference.

Duliscouet reports a case of laparotomy for the treatment of intestinal perforation, occurring during convalescence from typhoid fever, in which four days later a second abdominal section was required because of twisting of an intestinal loop.[1]

I have not been able to obtain the original article in time for incorporation in this paper. The double operation was followed by recovery of the patient.

J. Vincent reports a case of intestinal invagination

[1]Anjou méd. Angers, 1899, vi., 193.

during convalescence from typhoid fever.[1] At the end of nearly seven weeks the man was suddenly seized with abdominal pain and vomiting. Up to that time the typhoid fever had shown nothing unusual, and was of moderate severity and devoid of special symptoms. The diarrhœa had disappeared, and the patient had been free from fever for about two weeks. The man showed depression and complained of a little dull and diffused abdominal pain, with occasional colicky attacks. Below the navel and especially above the pubes marked pain on pressure was present.

Vincent was uncertain whether intestinal obstruction or perforation existed. Necropsy disclosed an invagination of the jejunum about 30 centimetres below the duodenum, which completely obliterated the lumen. The invagination was downwards and about 5 to 6 centimetres of bowel were engaged. At a point below, a second invagination was found, but here the obliteration of the calibre was not complete. The typhoid lesions were cured and showed no trace of cicatricial contraction or ulceration.

In Dunglison's College and Clinical Record[2] is mentioned a case of chronic obstruction of the bowel occurring in a man who had had typhoid fever seven years previously. He suffered at the time of the fever with peritonitis and seemed to recover perfectly, but a year later he was seized with an attack of obstinate constipation. Dr. James C. Wilson, who showed the man at his clinic in Jefferson Medical College, stated that such attacks had continued to happen at intervals of eight or ten weeks. Vomiting would occur, and finally the throwing up of great quantities of food mixed with fæces relieved the symptoms until a similar attack took place a few weeks later. The voided matter was a large, irregular mass, showing the appearance of having come through a small aperture and then being

[1] Archives de médicine et de pharmacie militaires, 1895, xxv., 400.

[2] Philadelphia, 1898, xix, 219.

coiled upon itself to form a large accumulation. Surgical operation was advised.

G. Harrison Young[1] reports an extensive chronic contraction of the ileum due to typhoid ulceration occurring two and a-half years before. It had caused no symptoms until sudden obstruction occurred after a jolt on horseback. The patient died eighteen days later with symptoms suggestive of a second attack of typhoid fever. Examination showed great contraction of the lower twenty-two inches of the ileum, with enormous dilatation above this region. The stricture was due to two bands, in the submucous tissue, believed to be due to old typhoid ulcerations. There were old cicatrices of the mucous membrane; and four recent ulcers in the ileum, one of which had perforated. There was also a perforation in the cæcum. The reporter did not believe the fatal ulcerations to be typhoid in origin.

Drs. R. H. Harte and A. P. C. Ashhurst mention[2] a case of peritonitis in typhoid fever due to intussusception.

August Hölscher, of Wiesbaden, in a study of the complications in 2000 cases of fatal typhoid fever examined in the Pathological Institute in Munich, mentions that ileus, or twisting of the intestines, was found in three cases.

It is probable that an extended search would show other reported cases of intestinal obstruction, happening in connection with typhoid fever and being responsible for its fatal termination. Enough has been said, however, to convince the thoughtful that acute abdominal crises in this fever should be sufficient warrant for prompt exploratory incision. The innocuousness of such operations skilfully performed, even in the course of this debilitating disease, has been fully established.

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[1] Medical Press and Circular, December 1, 1886, p. 471.

[2] Annals of Surgery, January, 1904, p. 23.